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# The Automobile

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THE ORIENT AUTOMOBILE QUADRICYCLE.

## Club News and Views.

### The Automobile Club of America.

The first meeting of the Automobile Club of America was held at the Waldorf-Astoria on Monday evening, Oct. 16. At this meeting General Avery D. Andrews was elected president, Mr. Geo. F. Chamberlin vice-president, and Mr. Homer W. Hedge secretary. The constitution and by-laws, extracts of which have been previously given in these columns, were formally approved by the club. Other matters of importance were brought up, such as the location and design of the new club house, club runs, etc. Thirty-five new members were elected at the first meeting, and to that list should be added the following: Edwin Gould, A. R. Shattuck, Frederick C. Stevens, Geo. W. Young, A. C. Bostwick, O. F. Crosby, John R. Hegeman, Jr., Joseph A. Blair, Gilbert W. Blanchard, Alphonso E. Pelham, Colonel Albert A. Pope and Walter A. Frew. The list of the one hundred founders is nearly completed. Quite a large number of applications have been received by the secretary, which will be passed upon by the regular membership committee. The matter of an automobile show to be held during the coming winter has been taken up very enthusiastically, and we shall probably hear shortly of more definite plans for such an exposition.

### An Automobile in Central Park.

The first automobile to enter Central Park, New York, belongs to Mr. W. E. Buzby. However, it did not go far on this occasion, as the policeman at the Fifth ave. entrance soon turned it in the direction of the magistrate's office, where it gave bonds for its appearance when its case comes up for trial. Automobiles have been excluded from Central Park by the Park Commissioners, while permitted on the drives in other parts of the city under the control of the commissioners.

The automobilists of the city have never considered the decision of the commissioners as final and have only been waiting an opportunity to present their claims for equal rights with the horse-drawn vehicle. Mr. Buzby was the first to obtain a permit to drive his automobile on Riverside drive, and while barred from Central Park has considered it only a question of time before he would enter. This attempt on the part of Mr. Buzby was only a method of bringing the matter before the courts for their decision and a bondsman and an attorney were present to see that the matter was directed toward the proper channel.

When the case was called on the 28th, the commissioners were not ready, but the matter will probably be settled at an early date. This automobile which has so boldly

defied the commissioners is a light electric phaeton, and the only objection that can possibly be raised against it is, that it has no horse in front of it.

### The New President of the Automobile Club of America.

Mr. Avery D. Andrews was the unanimous choice of the Board of Governors of the Automobile Club of America for its president. He is an exceptionally bright and popular man, and has an extended list of acquaintances on both sides of the Atlantic. Being a graduate of West Point, he is especially well known at Washington and in army circles. He was a Lieutenant of Artillery, U. S. A., served on General



ADJT-GEN. AVERY D. ANDREWS, PRESIDENT  
A. C. OF A.

Fitzgerald's staff, and subsequently as Major of Squad A. Although Mr. Andrews is a Democrat, he is the Adjutant-General of New York State under our Republican Governor, certainly a striking evidence of his sterling qualities. General Andrews is about 38 years of age, a lawyer by profession, and as such is connected with a number of the larger commercial enterprises of New York City. Although General Andrews is a very busy man, yet his knowledge, capacity and broad experience will prove very beneficial to the club, and it is especially fortunate for the club that one so favorably known assumes the presidency so early in its history. Pleasant and affable to meet, his greeting is that of the thorough business man, quick and concise in his remarks, and with all one whom it is a pleasure to know.

### The First Club Run.

The first club run of the Automobile Club is to take place on Nov. 4. It is to be a short run to afford the automobiles of all members an opportunity to take part. It is expected that fully seventy-five motor vehicles will be present. The line will form in front of the Waldorf-Astoria, at two o'clock, in the south side of Thirty-third street. The route will be down Fifth avenue, around Madison Square, up Fifth avenue to Mt. Morris Park. At 120th street the column will circle around the park and continue up Fifth avenue to 130th street; then across to Manhattan avenue to 110th street, up Morningside Park to Columbia University, to Riverside Drive, and to Claremont. At Claremont a luncheon will be served, and at six o'clock the line will re-form and return by way of Riverside and the Boulevard to 59th street and Fifth avenue. Many prominent guests have been invited to take part in the run, and it is hoped that favorable weather will aid in the success of this first run of the club.

### The Club House of the Automobile Club.

The site of the new club house for the Automobile Club of America is for several reasons not to be made public at the present time, but the plans are being formulated for it, and the matter is proceeding very successfully. It is to be built by a syndicate, and the plans, which are practically completed, provide for a ground floor, which will contain storage for vehicles, repair shops, etc., sufficient room being provided for the automobiles of the members. There will be attendants and experts present at all times to care for the machines of the members. The plans provide for the remainder of the house in a manner that is said to be very elegant and elaborate. The club has before it the magnificent quarters of the Automobile Club of France as an example of what is possible in this kind of a club house. This club house is already known the world over. Its appointments are magnificent, from the stately entrance to the enchanting garden upon the roof, with its artificial lake and pleasant retreats.

### Committees Appointed.

At a recent meeting of the board of governors of the Automobile Club of America, the members of the committee on laws and ordinances was appointed as follows: Adjt.-Gen. Avery D. Andrews, George F. Chamberlin and Simon Sterne. The committee on exhibitions, contests and tours: Albert C. Bostwick, Winslow E. Buzby and Whitney Lyon. The other committees will be announced shortly.

An automobile mail wagon is being especially built for the use of the Post Office Department. As soon as it is completed tests will be made to ascertain its fitness for use in the service.



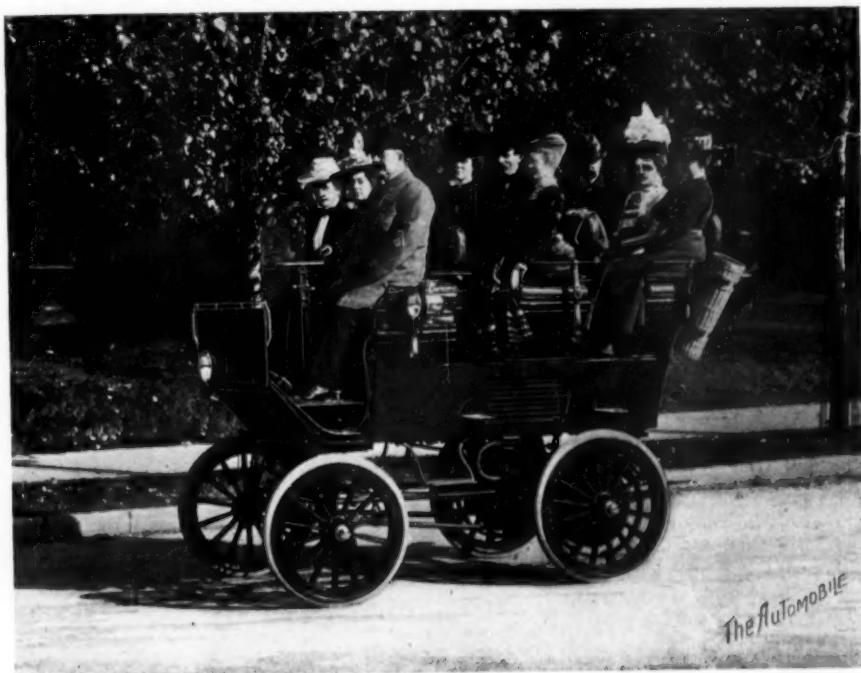
**The Orient Automobile Quadricycle.**

The front page of THE AUTOMOBILE this month presents a view of an automobile quadricycle, which has been very popular abroad and is coming into favor on this side of the Atlantic. The lightness of the carriage, together with the ease of its operation and the swiftness of its movement will undoubtedly make it immensely popular. It is narrow gauged and many bicycle paths will accommodate it.

The entire vehicle is constructed of metal and bicycle lines have been followed. It is propelled by a De Dion gasoline motor, which will give a speed as high as twenty-four miles an hour. The gasoline is carried in a reservoir, just under the rear seat. The motor is mounted on the rear part of

**The Waverley Automobile Brake.**

A style of automobile which has been looked for with especial interest is shown in the accompanying illustration. It accommodates nine persons comfortably, and is exceedingly handsome and attractive in appearance. The upholstery is in russet leather, with the various trimmings in harmony. The motive power is furnished by a storage battery within the body of the brake. Its weight, ready for the road, is about four thousand pounds, and is good for a run of about forty miles. The running gear, as will be noticed, is of tubular construction. The wheels are wood with solid rubber tires. It is well equipped with brakes, there being two, one of which is operated by hand and applied to drums at-



THE WAVERLEY AUTOMOBILE BRAKE.

frame, and is controlled by means of the little levers shown at the top of the frame operating through the rods shown. The ignition of the gas is effected by means of an induction coil and set of dry batteries carried on the automobile.

The pedals operate the main rear axle, and are used in starting the motor or on steep or sandy grades. They are also available, should an accident deprive the riders of the use of the motor. The motor will easily take an eight per cent. grade without the aid of the pedals. It is very easily operated, and to one accustomed to the bicycle its use will afford all the old time exhilaration without the accompanying fatigue.

This quadricycle is one of quite a line of Orient light automobiles which have been placed on the market, by the Waltham Mfg. Co., of Waltham, Mass.

tached to the rear wheels. The other is operated by the foot, and is applied to the periphery of the drum of the compensating gear, located on the motor shaft. Either of these brakes is sufficient to hold the carriage with its load on any grade. The two are provided to give double assurance of safety to the carriage. This brake has just been completed by the Indiana Bicycle Co., and is shown on one of its first outings.

**A Tire Trust.**

It has just been announced in Wall st. that the Rubber Goods Mfg. Co. has secured control of the manufacturers of rubber tires in this country. This company seeks a monopoly of the manufacture of such goods, and arrangements with the A. B. C. for supplying tires for its wheels is expected.

**Impressions of an Automobile Trip.**

After a ride to the top of Mt. Hamilton and back, President David Star Jordan, president of Stamford University, gives as follows some of his impressions of the trip:

The low, rubber-tired wheels take away the impact of stones and inequalities. The carriage sails across car tracks at any angle and its occupants are unconscious of them. Five miles on an automobile are less fatiguing than one in an ordinary surrey. The jar of the machinery is but slight, except for a moment before starting, and except when tugging up steep grades it is practically noiseless. The smell of gasoline is not noticeable most of the time. The virtual absence of dust is also very important. In ordinary driving the horses stir up the dust while the small wheels of the automobile raise very little of it. Furthermore, nothing shuts off the view forward. As the vehicle bowls along, the road is in plain view, and its occupants have the sensation produced by riding on the cow-catcher of an engine, and this without the monotony of a level track.

Horses look with disfavor on the automobile, but of the many we met, but one did anything more than start up a little. In the city of San Jose, the horses accustomed to electric cars for the most part paid no attention at all. On a wide road their momentary fright offers no embarrassment. The automobile crosses the road and passes them before they realize its terrible horselessness. The more swiftly the machine goes by, the safer for the drivers of horses. On the narrow mountain road there is a little more difficulty. In one case only did we have any embarrassment. A common horse, driven by two Portuguese laborers, persisted in turning around, and backed its wagon in front of the automobile, which stopped to avoid the collision. When the beast stepped forward the machine moved on and that was all of it. With reasonable care there is no danger to teams. It is surprising, however, to note how many teamsters going to or from the city are half asleep, driving carelessly, with slack rein. It is also noticeable that the average driver is watching the machine rather than his own horses.

**Hunting by Automobile.**

Among the hunting grounds of Maine for some weeks recently Mr. F. O. Stanley has been making the best possible use of his automobile. It takes him to and from his hotel on his hunting trips, or from one hotel to his next stopping place. This is not a use to which our continental friends hold the exclusive right, although we haven't a story equal to that told of M. Rene de Knyff, who is said to make forty miles on his automobile to a shooting lodge, put in a long day's shooting, and then return in time for dinner.

## The Automobile—Its Details, Management and Repair.

CONDUCTED BY GEORGE T. HANCHETT.

### AUTOMOBILE MOTORS, THEIR WEIGHTS AND RATINGS.

The construction of automobiles is even now beginning to take on the standard methods already employed in street railway work. Automobile motors are made complete, ready for attachment to the axle, and running gears of various kinds are now for sale, and we may soon expect standard sizes of axles, pinions and gears. Apropos of the manufacture of motors for this purpose, it is interesting to consider the problem of the rating of automobile motors.

The work of an automobile motor is intermittent, that is to say, instead of running steadily all day long at a practically constant load like a stationary motor, it is at one time running at a much larger load than it could possibly carry continuously, and again at a smaller load. It becomes quite a problem to rate such a motor so that the purchaser will have an adequate idea of its qualities. For instance, in a case that came under the writer's attention, two stationary motors rated at  $\frac{1}{2}$ -h. p. continuous load were re-designed for automobile work. The motors weighed in the neighborhood of 80 pounds each when stripped of all unnecessary metal. When tested on the road, they carried without a murmur loads closely approaching  $2\frac{1}{2}$ -h.p. between them, but this load was on only momentarily when the vehicle was on grades or gathering speed.

For considerable periods of time they easily performed  $1\frac{1}{2}$ -h.p., and at the close of about two hours intermittent running they were slightly warm, cooler in fact than they would be had they been acting as stationary motors in their enclosed cases. It is very interesting, therefore, to know what a manufacturer means when he says he has on sale a 3-h.p. automobile motor. Will it carry 3 h.p. continuously, or will it simply be able to carry 3 h.p. as a maximum effort? It is perfectly evident that absolutely nothing can be learned from the abstruse statement of capacity. The conditions also must be cited. The rating of an automobile motor should be arranged on some such plan as the following: First, its maximum capacity for continuous operation at a stated rise of temperature, say 80 degrees F. Second, a guaranteed overload capacity for half an hour. Third, a guaranteed overload capacity for 10 minutes. Fourth, the maximum momentary effort that the motor is capable of exerting without injury. The purchaser will then know how much power he can depend upon on a grade at various speeds, how much he can depend upon for continuous running on the level, and how much power he has at his command for starting or gathering speeds at different places, such as on a steep grade or in surmounting some short, abrupt obstacle, such as a steep

gutter board. No doubt the foregoing schedule of requirements can be improved upon and still more conclusive data can be stated. The object of what has been said is to point out the necessity of better methods.

### AUTOMOBILE MOTOR DESIGN.

The foregoing paragraph has set forth the fact, which is, no doubt, thoroughly appreciated, that the work of an automobile motor is intermittent. It must at times carry overloads of as much as two hundred per cent. compared with what it is able to carry continuously at a reasonable working temperature. In order that this may be done successfully, the points where motors break down on sudden overloads should be carefully looked to. Among these we may enumerate,

- a. The commutator, which, if it is too small, splutters and flares on overload.
- b. The brushes, which for similar reasons fail to carry overloads properly.
- c. The ventilation, which must be very thorough indeed to rapidly dissipate the heat that is generated.
- d. The insulation, which should be of such a character as to withstand extreme rise of temperature.

Asbestos, mica and other incombustible substances are now being made into very durable and suitable insulating compounds, and should be freely used in automobile motor construction.

### AUTOMOBILE MOTOR BRUSHES.

To the railway motor belongs the carbon brush. It has been stated by those who are in a position to know, that electric rail-roading could hardly have been as successful without it, and the automobile motor is confronting a problem which is just as serious, although perhaps it may find a more ready solution. The standard automobile voltage is 80 volts, and a carbon brush, while excellent at 500 volts, is relatively too high resistance to do good work at 80 volts. The brush must bear radially on the commutator, for the motor has to run in both directions. What sort of a brush is there which can be used radially, which is in a measure self-lubricating, which is more conducting than carbon and somewhat less conducting than heavy leaf copper? That is the problem which must be solved. The personal experience of the writer is that copper gauze used radially solves the problem. It can be highly impregnated with lubricant, it is of sufficiently high resistance to commutate properly, and yet not prove a serious impedence to the main current. If carefully stitched together to prevent fraying, it answers exceedingly well. Short radial gauze brushes are not expensive, and are apparently durable. It may solve the problem for the present at least.

### THE DROP IN AUTOMOBILE WIRING.

The writer had occasion a short time ago to measure the relative resistance of the circuits on an automobile, and was very much surprised to note that the motor resistance, which should have constituted the principal portion of the total, was less than twenty per cent. of the wiring system. Automobile currents are frequently quite large under moderate voltage. High resistance connections mean a serious loss of power. In locating the points where this resistance obtained, it was found that about forty per cent. was in the contacts of the controller fingers, twenty per cent. in the brush contacts, and twenty per cent. in the wires connecting the battery, the controller and motors together. The brush contact, of course, is inexcusable. The brushes were found to bear only on one corner. They were of high resistance and fitted loosely to their holders. The controller contacts were better than are found in the average street railway controller, but it must be remembered that when working at 500 volts, the loss of a few volts in contacts is by no means such a large percentage of the power as is the case when working in 80 volts. The wire drop was easily remedied by running larger wire, and the controlling contacts were ground to a better fit. The result was surprising, and showed not merely in testing the machine, but in operating it. It started buoyantly and strongly with very much less current than before, and as the controller contacts become more worn and the fingers fit more accurately, the action of the vehicle improves.

In street railway work a few watts more or less counts for very little. There is abundance of power at the station, and while more coal is used by the uneconomical equipment, it still does its duty. In automobile work, however, the saving of power means either increased working radius, diminished weight or increased speed or all of these desirable qualities. Efficiency and economy in automobile work is, therefore, a vital matter of operation. From the experience that has been recited, it is fair to assume that there are other electrical vehicles in which the resistance of the controlling circuits is excessive, and which, if given a little attention, are susceptible of being bettered to the marked improvement of the general performance of the vehicle.

### ELECTRIC AUTOMOBILES FOR FIRE SERVICE.

In large cities where the streets are netted with electric mains, the electrically-driven fire engine presents advantages which render it superior to any other automobile for the purpose. The arrangement should be systematic in order to obtain



the best results, and electric hydrants should be provided and distributed about the city in the same way that hydraulic hydrants are now arranged. The fire engine should be provided with a light storage battery, capable of an excessively high discharge rate, powerful and speedy motors and a powerful motor directly connected to a suitable pump.

With a system so equipped, the alarm of fire is given, the doors are thrown open and the engine starts at once. No waiting to get up steam, no harnessing, and perfect control by one man. The fire is reached, a lever makes suitable connections, and the pump motor is ready for work long before the hose connections can be made. As soon as the proper connections are made, the motor instantly starts, and water is on the fire. At leisure the firemen may make connection with the vehicle to the nearest electric hydrant, thereby driving the motor directly from electric mains and re-charging the storage battery for the run home.

Electric cables and portable lamps can be provided to assist the firemen in the inspection of cellars so foul with gases as to render it impossible for a lantern flame to survive. All that is expected of the mechanical system on the fire engine is to get the apparatus to and from the fire and operate the pumps, all without the slightest delay. With such an equipment as has been described, the hydraulic engineers will find that if greater speed is to be obtained in getting water on the fire, it is most emphatically "up to them" to improve their methods.

#### LEARNING TO USE AN AUTOMOBILE.

It may be of interest to those who have had troubles of their own in the management of automobiles to know that the automobile is a leveler of all ranks as far as management is concerned. The designer or maker of the vehicle is obliged to learn just like anybody else. The modus operandi can be booked in the memory in a few moments, but its practice is not so easily acquired. The would-be motorneur may know that if he pushes one lever forward he will go to the left, and if he pushes another back he will shut off the power. He meets an obstacle when going at a high rate of speed, and his mind decides that it is best to do these things. Mind and motion get tangled up, he pushes the steering lever back instead of forward, and the power lever forward instead of back, and goes crashing into the obstacle at full speed.

Similarly in the matter of steering, it may become urgently necessary for the motorneur to turn to the left, and if he emphasizes the motion to the urgency of the occasion, as it appears to him, he will shoot off to the left at a very abrupt angle. Seeing his mistake, he immediately tries to go to the right by an equally liberal but converse motion of the steering lever, and, in short, performs the zigzag motion very much akin to that of a learner on a bicycle. He must get in touch with his vehicle, and

know how much motion sends him to the right or to the left, and in what proportion. He must know how long it takes the motor to gather speed on the various notches, and in what distance it may be stopped. He must, furthermore, know these things instinctively, and perform them without thinking, in much the same way that he walks, eats or moves his eyelids.

#### THE NECESSITY OF A GOOD STORAGE BATTERY INDICATOR.

In the case of the electric automobile, it is very important for the user to know how much power he has at his command at any time. If he is ten miles from home and has about ten miles left in his vehicle, it is certainly important for him to know this before he goes further, and thereby arises the necessity for a reliable indicator of the condition of the storage battery. The voltmeter is usually relied upon for this purpose. It is assumed that if the cells show 2.1 volts each, that they are fully charged, that two volts obtains for a considerable period, and that when the voltage begins to fall off to 1.9, or possibly as low as 1.7, that the cell is practically exhausted. This is true only if the storage battery is in perfect order. If the cells are sulphated, it may easily be that the voltage may be 2.1 volts at times when the cells can deliver the merest fraction of their total ampere-hour capacity, and moreover, even when the cells are in good order, there is a long period covered by the two-volt indication, and, in short, the lowering of the voltage below 2 may come too late to give the automobilist proper warning.

The hydrometer, which measures the specific gravity of the acid, is considered, by storage battery experts as being the most reliable indication of its condition with respect to charge, but this will not do on an automobile. Frequently the cells are of such form as to render the use of hydrometer impossible, and at best it is exceedingly inconvenient. A recording wattmeter might be used, which would show the condition of the battery, and on large vehicles might be permissible, but to date nothing suitable has been designed for two passenger vehicles which constitute the great majority of automobiles. Every automobile should be provided with a voltmeter, and its indications should be consulted, but they should be by no means fully depended upon. The condition of the battery should at all times be known to the user.

A convenient method which is available at present is to provide the vehicle with a cyclometer which will register the distance traveled. The manipulator of the vehicle knowing the working radius of his vehicle on a level, can consult this instrument and figure how many miles are left at his disposal, making suitable deduction in case his previous course has been over hilly localities or bad roads. In short he turns his vehicle into a very crude sort of wattmeter for measuring the output of

the battery, the trouble with the improvised instrument being that the friction is exceedingly variable, rendering it necessary to take into close account in interpreting the readings.

#### SULPHATING, ITS CAUSE AND CURE.

Apropos of the condition of storage batteries it is perhaps well to mention one of the most serious diseases the device is liable to, namely, sulphating. Buckling, shedding, bridging and similar troubles are with improved batteries largely things of the past, but sulphating is a real present day difficulty.

When a cell stands fully charged untouched for a long period of time, the charge begins to dribble away. Some is lost by actual leakage from the terminals of the batteries between which stray currents can find a thin film of dilute sulphuric acid, some is due to local action in the cell by the exchange of charge between highly charged portions of the plate, and others which have not been so thoroughly oxidized, and large portions of charge are lost due to the instability of the chemical conditions which obtain when the cell is fully charged. When the cell becomes partially or fully discharged and still continues to stand without attention, an action known as sulphating begins, that is to say a lead salt formed with the electrolyte or liquid in the cell begins to accumulate on the plates and tends to turn them all to a uniform dirty gray color. The chocolate red color of the positive plate and the steel gray color of the negative plate, which are indications of the good condition of the battery, begin to disappear under these circumstances. The film of sulphate seems to shield the plate from the active influence of charging. The results are exceedingly disastrous. A highly sulphated battery cannot be charged to anything like its full capacity. The plates charge in sections or spots where the sulphating has not been so severe, and local action reduces the efficiency of the battery very greatly when the chemical action takes place thus irregularly.

It is not necessary to go into detail. It is sufficient for the automobile user to know that sulphating is serious, and it is highly important that he know its cure. The cure for sulphating is to give the batteries a very long overcharge at a very low rate. If the charging rate of the battery is, say, twenty amperes for four hours, let the batteries be charged at the rate of five or six amperes for twenty hours. The extra energy that is put in the battery, of course, will never be recovered, but will electrolyze or reconvert the injurious sulphate into its proper constituents. The battery should be charged this way several times before the sulphating entirely disappears. It is well for the automobilist to bear in mind the fact that his battery should be charged till it boils once a week, whether it is used or not. He will thus avoid much trouble and expense.

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## Foreign Subscriptions.

Hereafter the subscription price of THE AUTOMOBILE to foreign subscribers in countries embraced by the postal union will be one dollar and fifty cents per year, or fifteen cents per copy. Subscribers at the old rate will have their subscriptions extended four months, so that the price will be the same to all.

## THE AUTOMOBILE.

### Automobiles and Our Parks.

One by one the barriers that were reared before the automobile are coming down. The one about Central Park, New York, is almost the last one to stand and this will in all probability shortly disappear. The matter has now been brought to the attention of the courts and in a few weeks, at most, automobiles will be seen on the drives of Central Park as prophesied on the front page of THE AUTOMOBILE for September. The fight for this right in Chicago and other cities was short, when the matter was once tested before the courts. The action of the commissioners in New York seems to be based upon rules made in 1873, which are certainly quite out of date. The only ordinance brought up, is one that provides that the park drives can only be used by pleasure carriages. It would seem difficult to construe this so as to prohibit automobile carriages, while under similar ordinances allowing them the use of other parks and drives of the city. In some cities automobiles are placed along with other vehicles and allowed temporarily the same privileges, the right to place restrictions on them being waived for the present. The difference in the attitude taken is noticeable. The encouragement given to this new industry in one case, while in the other the mark of disapproval.

### What it Costs.

It is variously stated by builders that the cost of running an automobile is from one-tenth to one cent per mile. This is, of course, but an approximate statement, and applies only to the fuel or other form of energy consumed. As everyone knows, it also depends largely on the character of the road. A rough road, sandy road, and grades eat up the energy very rapidly. The weight of vehicle and load carried are also factors in the consumption of power. The latter is especially noticeable with the electric automobiles, in which the batteries make up a very large percentage of the total weight. Even with this style of vehicle the cost can be brought within one cent per mile. This part of the expense is the same as the "feed for our horse." Repairs, lubricants, etc., must come in for a considerable share. In one report for a year's run of more than 2,000 miles, more than one-half of the expense is chargeable to this account, the total expense being about three cents per mile. This includes expense for cleaning vehicle, etc., but not for storage.

### The Personal Factor.

There is a personal factor to be considered in estimating the expense for the maintenance of an automobile. The same has been true of the bicycle. No two riders would expend equal amounts on their wheels. It will be more evident in the history of the automobile, as skill in handling will have much to do with the economical expenditure of the energy. Among the

practical notes that regularly appear in this paper, particular attention has been called to the economical handling of the electric automobile, showing where energy can be saved in starting and stopping, in surmounting grades, etc. Equal attention to these points with other types of automobiles will show equal results. The reports of expenses incurred by automobile owners show a great diversity as to the amounts. In some cases experience has enabled the user to cut the cost of repairs very materially in a short time. Accidents, which are, of course, more common with the beginner, very materially increase the running expenses. An accident to the automobile itself, or which may occur indirectly as the result of a runaway, etc., while amounting to but a few dollars, will greatly increase the cost per mile at the end of the year. For instance, an item of \$10 would be one cent on a thousand mile run. A person, therefore, who is able to keep the expense within three or four cents per mile for the year's use has been very fortunate in this respect. The reports differ so widely that the question is already being asked, How do you do it?

### A Trans-Continental Road.

An enthusiastic automobilist has recently revived a proposition which was advocated a century ago, but has laid dormant for many years. It is for a government road from New York to Chicago, and possibly to the Pacific. This road is to be suitable for bicycles, automobiles, and light carriages. Asphalt is spoken of as the most suitable pavement for the rubber tired vehicles. The main road would be through the most thickly settled sections with branch roads leading to important points in the neighborhood of the route. The proposition at first seems great and the cost unsurmountable, but when it is considered what the combined efforts of the various cities benefited could do the proposition seems more feasible. The great work which has been accomplished by the bicycleriders of this country for the improvement of the highways is certainly wonderful, and shows what is possible when the energies of a large number are concentrated toward the same end. Such an enterprise would not encroach upon the business of any company, since its purpose would be entirely identified with the new industry.

### The Unfortunates.

On the introduction of every new industry, especially if it takes such a hold on the popular mind as to assume what is called a craze, fraudulent schemes are as numerous as the legitimate. Many put forth in good earnest by their promoters become fraudulent by the too-glowing terms in which they are presented. Others through ignorance of either the financial or the mechanical end of the business unwittingly play "cats and dogs" with the funds of the investor. The history of other industries



is being repeated in the case of the automobile. Unfortunately the disrepute in which the swindler soon finds himself often touches in a degree where it is wholly unmerited. Every legitimate concern will encourage thorough investigation when seeking for financial assistance, and such investigation will prove to the advantage of the industry. While on the contrary, the dishonest company will so hedge its affairs as to prevent anything but the most superficial examination. The practice of a cash payment with the order for an automobile, although in strict accord with good business practice, has in many cases led to very unsatisfactory conclusions. A large number of cases in which the contract so made has not been fulfilled have been reported at this office. It would certainly be right for the purchaser to demand at the same time some security for the money advanced, in order that he might have redress in case the contract should not be fulfilled. There are a number of companies whose business standing has been fully established, and is a sufficient guarantee for the proper fulfillment of their part of such contracts.

#### **An Automobile Fire Pump.**

An automobile fire pump has recently been placed in use in the city of Paris. Its electric motors, which are operated by a storage battery, are so connected that their power may be changed from the propulsion of the wagon to that of driving the pumps. It is said to be very successful at the tests that have been made.

The cost of operating an electric cab in the city of Paris, according to the report of tests read before the French Society of Civil Engineers, is \$3.97 a day. This is for an electric cab, and is less than the cost of a gasoline and ten cents more than the cost of a horse-driven cab per day. The calculation is based upon the supposition that the distance per day is thirty-seven miles, of which nine is to and from the depot and twenty-eight on the trips. The electrical energy consumed is estimated at \$1.28, which appears very high according to the tests made in America.

#### **The Automobile in China.**

A consular report has been furnishing matter for a newspaper item which has been going the rounds. It mentions the method to be pursued in introducing the automobile to the Chinamen. As far as interest to American manufacturers goes the information is premature and may as well go on the shelf for a few years. Home demands are certainly the first to be filled, and until such a time comes when there is a surplus of automobiles in this country the Chinaman may continue to use his coolies. European manufacturers are also occupied with home demands.

#### **Primary Battery for Automobiles.**

A German contemporary describes an automobile trolley operated by an electric

primary battery. The vehicle complete weighs 484 pounds, the battery 176. The battery is made up of 24 cells, each giving a difference of potential of two and three-tenths volts when supplying a strong current. The total capacity is 2,400 watt-hours. At a speed of nine miles an hour, carrying two persons, it consumes 700 watt-hours. When the automobile has run out its battery, which would be after 31 miles' run, it can be renewed in about fifteen minutes. The materials for renewal can be carried on the vehicle except the water, which is easily obtained from stream or hydrant. The cost per mile for battery is said to be from one and a third to two cents a mile. The capacity per pound of battery is 13.6 watt-hours.

#### **A Comparison.**

One of the first objections to the storage battery is its weight, which is also proportionate to the mileage capacity. The capacity per pound of the above-mentioned primary battery, as given, is but a trifle if any above that of the storage battery. The cost of operation does not vary greatly from that of the storage battery. In one point, however, it is vastly superior to the latter, and that is in the renewal of its lost energy. The storage battery requires from three to six hours for recharging, and it must have connection with a central station for that purpose. According to the description of this primary battery, it can be renewed in fifteen minutes with materials carried for that purpose. No central station, no switchboard with rheostat, meters and switches required. If this proves correct, another very important competitor for honors in the automobile industry is before us.

#### **Old Enough to Know Better.**

In the columns of a contemporary we find a notice of an anti-friction device for automobiles described as follows: "Applied to a truck carrying five tons, and previously hauled by two horses, it was found that one horse could haul it comfortably." Why not apply another and substitute a boy. If two are better than one, try three, and so on until the truck with its five tons, assisted by the breath of the driver, will move, climb hills or back into its stable. That is the kind of an automobile that is being looked for. One you just have to talk to and it obeys your will. Eats no oats and don't run away. Don't buck, nor fall over backwards. Rub it a little, "Aladdin's lamp" fashion, speak soft words to it, and it will carry you anywhere.

#### **A Dead Battery vs. a Dead Horse.**

While this is very early to determine accurately the life of the electric vehicle, yet there is a similarity between the storage battery which furnishes the power for the electric automobile and the horse which has performed a similar service. The available life of the latter, depending as it does with

the former upon the character of the work performed and the care he received, is usually placed from five to ten years. Five years on a street car is about the limit, while in another service it may be ten or more. During this time accident or sickness may suddenly terminate his career. From five to ten thousand miles with a battery, and it becomes a dead horse, not for the rendering works, but for old metal. Excessive work placed upon it may cripple it. Accidents in the way of short circuits or careless handling may send it to the battery veterinary. Its ills are as numerous as those of its equine contemporary, but with equal and intelligent care its service may be as long and as faithful.

#### **Fire Searchlights.**

The New York fire department is soon to have a novel addition to its apparatus in the form of a complete electric searchlight on wheels, which will go to fires with the engines, hook and ladder trucks and fire towers, and, it is expected, will do a share of work in saving life and property fully as important as that of any of the other machines. Its purpose will be to light up dark parts of the street and aid firemen in laying hose, setting ladders, or other regulation work. It will resemble a fire engine in general appearance, and will use a similar boiler, but in place of the pumping machinery, the engine will drive a dynamo, which will supply the lighting currents for the searchlights. There will be two searchlights, each with an 18 inch projecting lens, and these will be carried on a platform behind the driver's seat. They can be used either from the platform or removed and carried to any convenient place nearby, their connection with the dynamo being kept by means of flexible cables. Our city fathers are certainly behind the times. An automobile is the only modern vehicle, and upon reaching a fire its batteries would supply the lights or would afford means for connecting with street mains for current. An automobile will make the quickest time through a crowded street.

#### **The Success of the Electric Cab.**

What more conclusive evidence of the success of the electric automobile cab could be desired than is shown by the introduction in Chicago and other cities of such a cab service. The automobile cab in New York has become an established business, its practical nature having been clearly shown by the successful service given since its introduction many months ago. Their number has steadily increased, and before another twelve months has passed their number will undoubtedly be reckoned in the thousands. Many objections to them have been overcome, and such as were of an aesthetic nature have disappeared with our further acquaintance with the automobile. The electric storage battery is especially well designed for such a service which is performed within a certain radius in a thickly populated section.

### Automobiles for the U. S. Army.

Not to be behind the times in any particular the United States army has recently had constructed for its use the military automobiles shown in the accompanying illustrations. They were designed for the



FIG. 1.—AUTOMOBILES FOR THE U. S. ARMY.

signal corps under the supervision of the chief signal officer. Two wagons were built like the one illustrated in Fig. 1. They are designed to carry the signal corps' various instruments and paraphernalia. One wagon has been built as shown in Fig. 2, designed for the officers of the signal corps to ride in.

The equipment of the first mentioned wagons consists of forty cells of storage battery of sufficient capacity to run these vehicles thirty miles on one charge of the batteries, carrying fifteen hundred pounds transportation load. The motor equipment consists of two three and one-half horse power motors, one attached directly and independently to each rear wheel. They are so wound and designed that they can be worked on grades and bad roads to as high as six horse-power each, which would mean a maximum horse-power capacity of twelve horse-power for each wagon, with batteries of sufficient size to work at that point temporarily.

The maximum speed of the vehicles is ten miles per hour. A novel feature of these vehicles is the entire absence of anything like bicycle construction, or what is commonly expected on automobiles. Every piece of iron work in the vehicle from start to finish was hand forged in the smith shops of the Woods company. The wheels were specially designed and made for this company with steel hubs, the inside of which forms receptacles for the ball bearings, as it was found that iron hubs were

not adequate to this work. In lieu of anything like pneumatic tires, solid hard rubber tires two and one-half inches in diameter have been used, as army service cannot afford to take any chances of punctured tires or break downs from any such cause.

While similar in appearance to delivery

noticeable feature of these vehicles is their painting, as they are finished in olive green in both body and gear, without any form of ornament or striping, being painted as near the color of grass and foliage as possible, so that they would not be conspicuous to the enemy in the field. They are fitted up with electric lights in the side lanterns, and in the larger vehicles in the interior also, and it is understood that later, a new form of search light will be added to the equipment of these wagons for use as occasion may require.

These wagons have but recently been completed by the Woods Motor Vehicle Company, of Chicago, of which Mr. C. E. Woods is general manager and engineer. He has been engaged for a number of years upon the various problems which the automobile has presented to the engineer. The extensive line of automobiles which have been brought out by Mr. Woods' company shows how thoroughly the field has been covered.

### Four Hundred Miles a Day.

The distance from Edinburg to London, a trifle under four hundred miles, was recently made by Mr. J. W. Stocks in a day. The exact running time was twenty hours, thirty-five minutes. He left Edinburg Saturday morning at six, arrived at Newcastle (121½ miles) 11.25, where he stopped for supplies for himself and his motor, petrol and oil for the latter and coffee and sandwiches for himself. Setting out after but a short stop, he reached Dorchester at 5.09 in the afternoon, a distance of 233 miles. London was reached at 2.35 Saturday morning. The best previous time by high-



FIG. 2.—AUTOMOBILES FOR THE U. S. ARMY.

supplied with doors which, when the wagons are not in use, lock everything securely on their interior. Another very

way between the two capitals was made by F. R. Goodwin on a bicycle, 25 hours, 20 minutes.



**The Galesburg Race.**

The race which took place the first of last month between Dr. Morris and F. B. Snow was a disappointment to the crowd. A disarrangement of the sparking device in one of the motors threw the race to Dr. Morris. When about fifteen miles had been covered the trouble appeared, and as it was impossible to repair the defect on the track, Mr. Snow forfeited the race. The best mile was made in 2.32, and the average for the fifteen miles was 2.48%. The automobiles were both propelled by gasoline motors. It is reported that Mr. Snow has issued a challenge to another race.

**Electric Cabs in Chicago.**

Electric cab service has been inaugurated in Chicago. The Illinois Electric Vehicle Transportation Co., the licensee of the Electric Vehicle Co., has purchased a building on Michigan avenue, and will remodel it to meet the requirements of the new industry. The batteries will be charged and cabs stored in this building, which is in a central location. It is a suggestive coincidence that this building was formerly used as a livery stable.

**Felted Rims.**

A very ingenious method of protecting pneumatic tires is illustrated in the accompanying cut. As all users of rubber tires know, that portion of the tire which comes in contact with the edge of rim is the first to show wear, and when used on heavy vehicles it will be more pronounced than with the lighter bicycle. This is especially true where tires are run a little soft. By means of felt strips placed over the edge



FELTED RIMS.

of the rim a cushion is provided for the tire along the edges. The Colonial Automobile Co., of Boston, are the makers of these strips, which are sold separate or the rims complete. This is one of several improvements the company has on rims for vehicle wheels.

**A Fast Mile.**

A very fast mile with an automobile is reported from Brockton, Mass. At this city for some time Marsh Bros. have been experimenting on the construction of automobiles, and this record shows the proficiency of their motor vehicle. The record made for a mile was one minute 34% seconds. The carriage was under the guidance of Mr. W. T. Marsh.

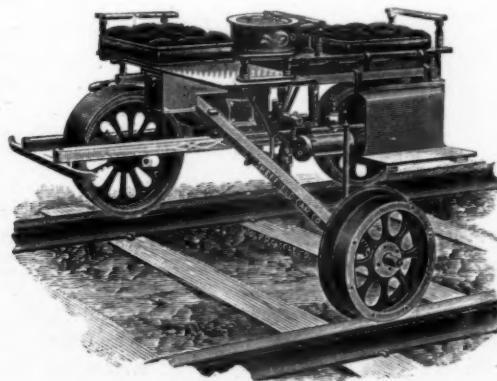
**Automobile Stages.**

One of the fields for the automobile that is being closely investigated is the transfer of persons from one point to another, where the amount of travel is not sufficient to warrant the construction of a street railway. The matter is receiving attention both here and abroad. Something in this line is an electric theatre 'bus, built by an American company. A hydro-carbon vehicle of this class is being undertaken by several companies. The Daimler Motor Co., of Coventry, England, has recently brought out a 'bus that far excels in appearance its former productions.

**An Automobile Inspector's Car.**

Railroad men who have traveled on the old hand car when inspecting a roadbed, which went with the wind but seldom with any success against it, will appreciate this automobile car. It is light, weighing but three hundred pounds, and will carry three men at a speed from fifteen to twenty miles an hour. It is readily handled by one man, and can be placed upon the track or removed from same in a few seconds. A gasoline motor drives the car, and the sealed copper reservoir, in which is carried the gasoline, will contain sufficient for one hundred and twenty-five miles run.

Railroad officials, by the use of this car, will be able to cover several times more road than by the old methods, and will do it more economically. When it is desired to carry a larger number of persons, two of



AN AUTOMOBILE INSPECTOR'S CAR.

these cars may be joined by removing the third wheel and connecting by rods. The main part of the car as arranged will carry six persons and also some tools. For handling or shipping by train the cars are easily taken apart in a few moments. The manufacturer is the Sheffield Car Co., of

Three Rivers, Mich., who will probably shortly bring out something larger in the line of a roadmaster's car.

**Who Owns the Park.**

We shall soon find out whether Central Park is run for the benefit of the public or simply to meet the whims of the Commissioners. For some utterly inconceivable reason automobiles have been kept out of Central Park. Grizzly bears could not be looked on with more horror than this new invention, which has added so much to the gayety and profit of nations.

If an automobile used small children for motive power; if it had a tendency to eat shrubbery and knock over trees; if it was offensive to the eye or ear, or even if it discommodated any one, there would be some sense in keeping it out of the Park. But as the automobile is only a delightful means of locomotion, as it is pleasant to beholders as well as riders, and as it in no way inconveniences any one, the prohibition is absurd. Just why it is insisted on is one of those things "no fellow can find out."

Apparently we shall find out very soon. Philadelphia's Park Commissioners tried the same game, but soon gave it up as a bad job. Isn't it strange that the much maligned Philadelphia should be ahead of New York in this matter? Isn't it about time to stop such old foggy business? The parks belong to the people, and they should have every legitimate use of them. —N. Y. Telegram.

**From Our Contemporaries.**

A sign of the times is the appearance of a monthly periodical in New York devoted exclusively to news and discussions about self-propelled vehicles. The name is *The Automobile*, and the illustrations are excellent and interesting. —New York Sun.

The latest addition to the list of trade journals is called "*The Automobile*," which is an illustrated monthly devoted to the subjects indicated by its title. It is published at 150 Nassau street, this city, by the E. L. Powers Company. —American Machinist.

Of course, the horseless vehicles must have a newspaper to set forth their claims and capacities, and *The Automobile*, a monthly publication, has been put forth by the E. L. Powers Company, of this city, to take up the work. It is illustrated and neatly printed. —New York Times.

The *Automobile* is the title of a new 16-page monthly, 9½ x 12. The paper, as its name indicates, will be devoted to exploiting the automobile industry. The first issue is well illustrated, and contains much matter of interest. It is published by the E. L. Powers Co., 150 Nassau street, New York. The subscription price is \$1.00 per year; single copies 10 cents. —Power.

To judge from the first number, issued in September, *The Automobile* will be characteristic of the new field it seeks to cover —up-to-date in every respect. Its purpose is to present in short concise articles the latest information obtainable respecting the various uses of the new vehicle in all its many forms. The first number illustrates several new types. Address *The Automobile*, 150 Nassau street, New York City. —The Tradesman.

### Up Mt. Hamilton.

By Albert T. Smith.

When I was asked to go to the top of Mount Hamilton by automobile, I hesitated. I had made the trip once on foot, once in a stage and once on a bicycle. One should not exhaust all possibilities. Then I remembered the air-ship, and the projection of astral bodies, and it seemed that the future might still hold something, and I accepted.

We found Mr. Elliott at the Hotel Vendome, in San Jose, with his automobile. It certainly is an attractive-looking vehicle. It is actuated by a horizontal, two-cylinder gasoline engine, with the crank-shaft in front of the cylinders. The crank-shaft has three connections with an intermediate shaft, with friction clutches for throwing in and out of gear. One connection gives a speed of five miles an hour for hill climbing, another a speed of eighteen miles an hour for smooth, level roads, and the third connection is for reversing. This intermediate shaft is connected to the rear axle. The engine is well designed, and well built, and all the machinery is compactly arranged.

The automobile started from the Hotel Vendome, and ran out over the level, and up hill and down and up again, until it stood before the great dome of the Lick Observatory.

I rode down the slope into Smith's creek and the tingles ran up and down my back, and out of my fingers' ends. I have had no such experience since the awful pleasures of witch tales years ago.

On the way down the mountain the brake gave out; but there was an emergency brake, and all went well. And so we slid down into San Jose, and the trip was over.

The horse must surely go, for the era of automobiles is upon us. What a pity it is that Mr. Elliott cannot run all of them—Examiner.

### Cost of Operation.

In a recent number of the "London Daily Mail," Mr. E. H. Bayley has the following to say in regard to the cost of operating automobiles: Of course, no matter how excellent motor-driven vehicles may be, no one would look at them seriously if their use were more expensive than that of horses. That is exactly where the ultimate success of motor vehicles lies, for the tests of the Automobile Club at Richmond, and, more recently, those held by the Liverpool Self-Propelled Traffic Association have shown that not only can motors do general carrying work more quickly and more efficiently than horses, but—most telling point of all—do it at less than one-seventh of the cost. For instance, we have a car which has been proved, under the tests already mentioned, to be capable of carrying a load of 3 tons 12 cwt. at a

cost for fuel which works out a half-penny per ton mile. The total up-keep of such a vehicle, when all expenses for working, wages, fuel, repairs, insurance, etc., are taken into consideration, comes to a sum of £407 os. 3d. (\$1,980.73), and this, with a carrying capacity for two hundred and sixty working days, gives an average cost of a fraction under 3 half-pence (3 cents) per net ton per mile. When that is compared with the cost of horses—my experience teaches me that it varies from 9d. to 1s. (18 cents to 24 cents) per ton per mile—it can be seen what a future such vehicles have before them. In this branch of automobiles England has the lead, and presently she will not be so far behind with light

The only space available was the space beneath the driver's seat. Here two motors were fixed, each weighing 50 kilogrammes and developing two horse-power. The voltage of the motors is 85, and the number of revolutions 1,100 per minute. Power is transmitted from the motors to two small pitch chain wheels, and from these by pitch chains to two large pitch wheels fixed on the two hind wheels of the cab. The accumulator battery is placed in a box under the cab, and this box can be removed and replaced by another with fully charged batteries in from two to three minutes.

### Steam Ploughing.

The following notice respecting a test made of a steam plough is from the Canadian Electrical News: An illustration of the growing application of steam power for agricultural purposes was given last month



FIG. 1.—SOME NEW AUTOMOBILES.

carriages, for the company referred to is taking up the question of building racing cars to compete with those of French make. Already three orders for cars costing £1,000 (\$4,800.50) each have been placed, which shows that English enthusiasts are prepared to support home industries if given the opportunity.

### Electric Cabs in Berlin.

Electrical cabs have recently started running for hire in Berlin. The difficulties to be overcome in designing a motor cab to comply with the police regulations in Berlin are considerable, says the "Electrical Review," London. Practically all motors, except the electric motor, are excluded, and the dimensions of the electric cab are required to correspond very closely with those of the horse cabs at present in use. It became, therefore, impossible to fix the motors in the most convenient position for transmitting power to the driving wheels.

at Morden, Manitoba, where a test was made by the Canadian Pacific Railway Company of a steam plough. The machine moved at a speed of one and one-quarter miles per hour, and dragged after it a gang of ten ploughs, which turned over a width of twelve feet of earth, of the depth of four inches. The fuel used was the herbage which had grown on the prairie common to the western country, and which had been cut down a few days previously. We are told that the fly-wheel moved at the speed of 203 revolutions per minute, and the driving wheel of the machine at four and one-half revolutions. At the speed at which the test was made, the ploughing done in one day would be about 20 acres. As the price paid for ploughing in the Northwest is said to be about three dollars per acre, it would seem that from the point of economy the steam plough is a success. That they will come into more general use is almost a certainty. In Germany, for instance, steam ploughing is said to be very largely adopted.



**Some New Automobiles.**

That American inventors are determined to produce the right sort of automobiles is evidenced by the new types that have recently been brought before the public. In this connection the vehicles herewith presented, embrace a number of uses for which

In Fig. 3 is shown a special automobile, designed for use at Mojave, California. As will be noticed it is a heavy wagon, mounted on low, broad tired wheels. Its speed, rate, "light," is from nine to eleven miles, but under its maximum load of three and a-half tons, on good roads, it cuts down to

**A Prospector's Automobile.**

This miner's prospecting wagon is in reality a mining camp complete, and at the rate of from two and a-half to four miles an hour, it will go from two hundred and fifty to four hundred miles with the ordinary supply of hydrocarbon. It is fitted with a commissary compartment, in which can be carried enough provisions to last many days. There is mounted upon the truck an ore crusher, that can be connected directly to the motor, and an assay furnace outfit to test the gold bearing ore as it may be found. The seat can be turned down and will provide a bunk for two persons and in practice while one man acts as navigator, steering the wagon, his companion can be busy making assays of their findings, about in the same way as an expert would in a well-equipped laboratory. As the prospecting vehicle carries a supply of fuel, in the way of hydrocarbon, prospectors can start and go into the arid country, one hundred and fifty miles away from their fuel supply. With a good supply of water and provision and an extra barrel or two of gasoline aboard, they will be equipped to

do prospecting that is impossible now. With a canopy stretched over the wagon at night, it is virtually a tent in which there is provided every convenience of an up-to-date laboratory, and also a cosy kitchen in which everything can be cooked and light provided from the hydrocarbon gas, equal to the light we enjoy in New York.

Often men start into a country like the

automobiles have not heretofore been offered. The line proposed includes not only light pleasure carriages, but also heavy vehicles for trucks, drays, coaches and miner's prospecting wagons.

In Fig. 1 is shown the pleasure carriage, adapted for either the family or for touring purposes. The wide heavily upholstered seat, the ample top and commodious forward part of the carriage make it roomy and comfortable for a long ride. The method of steering the carriage is similar to that which has been so successful abroad. The hand wheel releases the arm from the vibration of the forward wheels. The wheels shown on this carriage are not the ones to be used on the standard automobile. The company's engineer says that practice has proven that a good substantial wooden wheel is preferable and will be used on all the later vehicles. This carriage weighs seven hundred pounds, burns ordinary gasoline and is capable of any speed up to thirty miles an hour.

In Fig. 2 is shown the heavy running gear for their larger and heavier automobiles. Any body may be placed upon it and its use adapted to the requirements of the purchaser. It can be put to a great variety of uses and should good judgment sanction it, some modifications can be made in sizes of wheels, etc.

two or three miles an hour. Its motors give twenty-two horse-power. Its weight is fifty-four hundred pounds.

This line of automobiles is being brought out by the Auto-Acetylene Co., Park Row, New York. The company has recently secured a factory at Hyde Park, Boston; where its regular line of vehicles will be built, and another at

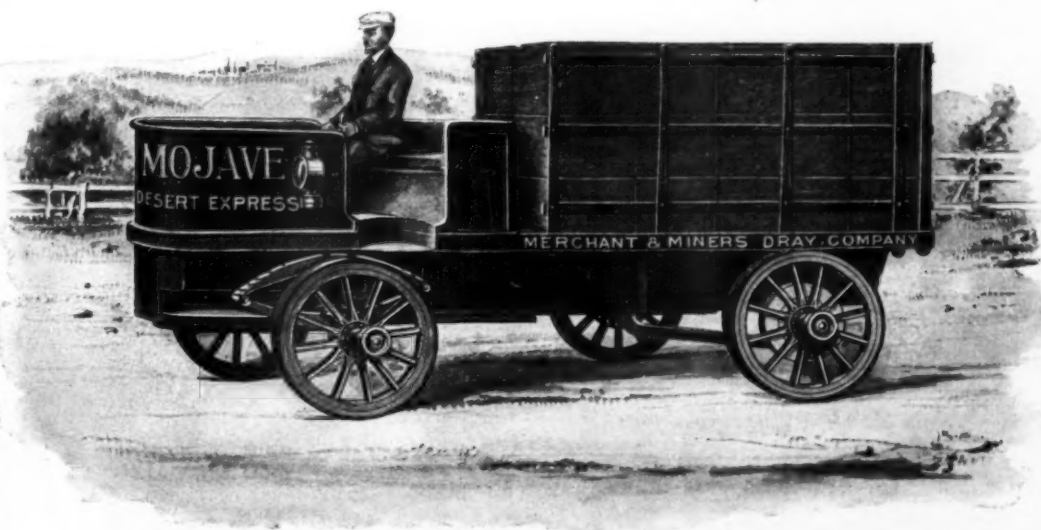


FIG. 3.—SOME NEW AUTOMOBILES.

Greenpoint, N. Y., which will be convenient to New York City, and a general repair department for all kinds of automobiles will be there established.

Mojave Desert and the Great Basin of Arizona and never return, and much of the country in which gold exists cannot be explored, because there are no means of

reaching the desirable localities, but with an automobile, capable of travelling one hundred to two hundred miles, provisioned with food and an ample supply of water, which is one of the great essentials, men can go and stop along the way, examine the outcropping of rocks or the placer fields, and yet they will be as comfortable

as though they were in one of the modern hotels of the city, and when they have explored the country to their satisfaction, and found what they believe paying ore, they have with them all the outfit necessary to make an examination. Such are the novel plans for an automobile wagon as designed by the Auto-Acetylene Co., of New York.

## Here and There.

Controller Johnson, of Indianapolis, is the authority for the statement that the automobile comes under the three-dollar license law in that city.

Evidence of the daily increase in the use of the automobile in our large cities is not wanting. The large number to be seen on the streets tells the story.

The third anniversary of the passage of the Light Locomotives Act in England is to be celebrated on the 14th of the present month by a meet and dinner at Whitehall Court, London.

The world's record of seven minutes thirty-seven seconds for five miles on a motor tricycle is held by Beconnais, of Paris. It was made at New Brighton, England, July 8, 1899.

The world's record for a kilometer on an automobile is held by M. Genatzy in thirty-four seconds, with a flying start. M. Beconnais contemplates a trial with a view to breaking this record. His best time up to date is forty-eight seconds.

The St. Petersburg authorities make slow traveling for automobiles. Eight miles per hour is the maximum speed allowed. Permits are granted to owners after an examination of both owner and automobile. Only a few permits have so far been issued.

The Memphis Commercial Appeal, not believing that the automobile millennium is at hand, remarks:

"What will become of the horse?" asks an anxious contemporary. Never fear; the horse will find plenty of work pulling the automobile."

Comte Boson de Perigold, a member of the Automobile Club of France, is about to undertake an automobile tour in Algeria and Kabilia. The tour is to occupy several months. Among the members of this party are Comte de Crisenoy, Comte de Moustiers-Merinvillle, Comte de Galliffet and M. de Lazarches d'Azay.

A light four-wheeled automobile, with bicycle style of frame, has been recently built by Mr. W. H. Chapman, of Portland, Me. The electric motors were made by the Belknap Motor Co. The carriage can be run from twenty to twenty-five miles on one charge of the batteries.

The Liverpool Self-Propelled Traffic Association is to hold a series of trials of heavy automobiles during the early part of the present month. These trials are a

continuation of those held recently and described in another column of this issue. The French trials, conducted by the La Locomotion Automobile commence October 9th.

A light self-propelling car is wanted by a number of steam roads and electric roads which are used chiefly during the summer season and closed now during the winter months. A light car which could be handled by one man would enable the company to furnish service during the dull season, which is now prohibited by the expense of running their trains or keeping power stations in operation.

It will be difficult for an automobile to escape from the scene of an accident without identification in Brussels, under the new rules. Each automobile must have a number of good size painted on both front and back. Speed is limited to eighteen and a half miles an hour. These rules go into effect the present month.

The first automobile to be owned and used by an American city department is that which is used by the city of Boston. It is a steam carriage made by the Locomobile Company. The automobile is used by the chief of the repair department, and Mayor Josiah Quincy announces that it is in regular and successful service, and that others will be purchased for the use of the city.

A bicycle factory in Pennsylvania has just completed a number of jinrikshas for China, Japan, South Africa, and the Philippines. The bodies of the carriages are of wood, and some of the wheels are of bicycle finish, with rubber tires. All have tops to protect the riders from the heat of the tropical countries. The American manufacturers have greatly improved the running qualities and appearance of this useful, but queer-looking vehicle.

The United States Express Company has for several days past been running a new electric automobile express wagon in its delivery business in New York, and is said to be well pleased with its performances. If the vehicle proves successful after a thorough test others of the same kind will probably be put into general use by the company. The vehicles resemble in appearance the present money wagons of the company. They will be used for money and small valuable parcels. Each can carry, besides two employes, about 800 pounds, and cost \$2,000.

The automobilist who contemplates making a tour of Switzerland may profit by the experience of two Frenchmen who recently entered the republic. Upon entering a canton a permit was demanded, and upon its being obtained, they were allowed to proceed. At the boundary of the next canton the demand was repeated, and it was found that a separate permit must be obtained for each canton entered. As there are twenty-two cantons, which could be ridden through in a day, the pleasures of the trip would be seriously handicapped by the red tape.

## The Crouch Steam Automobile.

The steam carriage upon which Mr. Crouch has been at work for some time past is now perfected to such an extent as to be placed upon the market, and is shown in the accompanying illustration. This is a new model, which is well adapted to the requirements of such a vehicle. It is light in weight, weighing but 625 pounds, and also light in appearance. Its motive power is steam generated in a water-tube boiler over a gasoline flame. Sufficient fuel is carried for a ride of one hundred miles, and in its operation it is practically noiseless, there being little vibration, no smoke, and



CROUCH STEAM AUTOMOBILE.

but slight evidence of the steam used. The frame of the carriage is steel, with an aluminum body mounted on wood wheels with solid rubber tires. The designer of this carriage is a practical machinist as well as an inventor, and the various parts of the driving mechanism are as carefully constructed as if they were used in a sewing machine or for other high-class use. The carriage is low, easy of access, and easily operated.

One of the many journals that have appeared in the last few months, devoted exclusively or in part to the horseless-vehicle industry, is *The Automobile*, which is published monthly by the E. L. Powers Company, of New York. The September issue of this journal give a number of short and concise articles appertaining to motor vehicles, and promises well for the future. Mr. Powers is well-known in Chicago, and many friends wish him success in the new venture.—*Western Electrician*.





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Made the Wheels as shown in the above cut.

Special attention given to construction of wheels of peculiar and original design. Established 1855. Reputation international.

### Patents.

632,438. MEANS FOR REDUCING FRICTION OF AXLES AND BEARINGS. William J. Brewer, London, Eng., assignee of one-half to William A. Simmons, trustee, New York. Filed May 4, 1899. Serial No. 715,587.

A combination of antifriction rollers and end-rings in which the rollers are mounted. Provided also with bolts which draw the end rings toward each other to take up wear, the end rings form parts of a revolving cradle the individual parts of which are removable.

632,378. VEHICLE TIRE. Thomas D. Stewart, Chicago, Ill., assignor to Heyer Storage Battery Company, same place. Filed Feb. 8, 1899. Serial No. 704,956.

A channeled metallic ring in which is fitted a rubber tire. Through an aperture in the centre of this tire is passed a retaining strip consisting of a flat metallic band provided with beaded edges and a number of central projections terminating in transverse shoulders which lie in recesses provided in the rubber tire. The ends of this strip are connected so that it forms a band.

632,509. CARBURETING DEVICE FOR GAS OR EXPLOSIVE ENGINES. Seymour A. Ayres, Bay City, Mich. Filed June 5, 1899. Serial No. 719,366.

In a carburetor for gas or vapor engines, the combination of the combustion chamber, an air passageway communicating with chamber through valve-controlled opening, a fluid receiving chamber, a fluid emitting valve, and a hinged gate in air passage below opening, adapted to close the air passage. The gate has a screen-covered opening in its centre.

632,474. MOTOR-DRIVEN VEHICLE. Chas. T. B. Sangster, Bournbrook, Eng. Filed March 3, 1899. Serial No. 707,647.

A motor-driven tricycle has the motor mounted in rear of seat between the triangular frame. Motor is controlled by levers in front of seat running to the different parts of motor. Vehicle provided with brakes, etc., all of which are minutely described in application.

632,540. PUNCTURE CLOSER FOR PNEUMATIC TIRES. Robert W. Sampson, Quebec, Canada. Filed Dec. 8, 1898. Serial No. 698,665.

This puncture closer consists of a threaded shank with its upper end offset to form a temporary handle, a ball attached by an universal joint to its lower end and a co-operating retaining cap.

632,574. WHEEL FOR CYCLES OR OTHER VEHICLES. Frederick W. Jones, London, England, assignor of one-tenth to Edmund Walter Murgar, same place. Filed Feb. 14, 1899. Serial No. 705,507.

A rim consisting of an inner and outer concave and convex parts, each having its edges provided with grooves, a pneumatic tire having thickened edges secured in said groove, a trough-shaped hoop of non-expandible material lying in a groove in the middle of the tread of the tire, and a solid ring of suitable material fitted in the trough-shaped hoop, are the important parts of this wheel.

633,275.—Means for Electric Ignition for Vapor Engines. Issued to C. C. Rlotte.

633,429.—Resilient Tire for Wheels of Road Vehicles. Issued to H. C. Crane.

633,373.—Pneumatic Tire. Issued to F. Toni.

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633,444.—Rubber Vehicle Tire. Issued to A. E. Friswell.

633,539.—Rubber Vehicle Tire. Issued to C. H. Wheeler.

633,231.—Brake for Vehicles. Issued to M. N. Collins.

633,283.—Motor Vehicle. Issued to C. M. Dissosway.

633,157.—Motor Vehicle. Issued to F. H. Richards.

633,234.—Speed Varying and Steering Device for Motor Vehicles. Issued to Draullette & Catols.

634,150.—Ball Bearing for Vehicle Wheels. Issued to W. R. Spruill, Sr., and W. R. Spruill, Jr.

634,278.—Cycle Speed Changing Gear. Issued to L. Sulmont.

634,063.—Gas Motor. Issued to Mallet, Fontaine & Latrombe.

634,207.—Mechanical Movement for Gas Engine Valves. Issued to J. B. Fenner.

634,292.—Motor Vehicle Clutch. Issued to W. E. Gibbs.

634,067.—Self-Propelling Vehicle. Issued to R. H. Plass.

634,469.—Tool for Making Accumulator Plates. Issued to W. Majert.

634,725.—Tubular Tire for Wheels. Issued to Eickmann & Fay.

634,827.—Motor Vehicle Driving Mechanism. Issued to G. Mees.

634,597.—Vehicle Running Gear. Issued to J. H. Warren.

634,514.—Vehicle Steering Gear. Issued to H. G. Underwood.

634,718.—Vehicle Wheel. Issued to A. T. Colton.

634,614.—Vehicle Wheel. Issued to J. Doyle.

634,832.—Brake and Power Apparatus for Electrically Driven Vehicles. Issued to W. E. Pearson.

634,979.—Electric Motor for Driving Motor Carriages, Winches, etc. Issued to H. W. Headland.

635,231.—Hub for Vehicle Wheels Resilient. Issued to W. E. Carmont.

635,155.—Igniting Device. Issued to C. F. P. Stendebach.

634,920.—Pneumatic Tire. Issued to B. F. Taylor.

633,128.—Wheel with Traction Rim. Issued to C. M. Dissosway.

### A Successful House.

Prominent among the well-known names of our advertisers in the current issue of The Automobile appears that of the sterling old house of Phineas Jones & Co., Newark, N. J., who, by their persistent endeavor in the field of invention and improvement, as well as by the unsurpassed excellence and durability of their goods, has achieved the proud and enviable distinction of a recognized leader in the wheel manufacturing industry in this country. Their reputation is not confined to the United States alone, for it can be truthfully said that in the fifty years of their existence, during a period in which there has never been a day's interruption of business, the Jones standard wheels have made furrows in the soil of every known quarter of the globe where a wheel could be used.

The spacious plant of the company, with its immense buildings, covering a large tract right in the heart of the big manufacturing town of Newark, furnishes employment to hundreds of skilled workmen, and is one of the first sights that greets the eyes of the stranger entering Newark by the Pennsylvania R. R., near whose convenient station the main offices of the company are located. The sole member of the company is Mr. Henry P. Jones, the son of the founder, under whose careful personal management and through whose keen insight and sound judgment the affairs of the company, which has successfully weathered the most disastrous financial crises in our national history, have been conducted. It is gratifying to us when as staunch a firm as that of Phineas Jones & Co. recognizes in so tangible a way the value of The Automobile as an advertising medium.

Automobiles propelled by electric and gas motors, as well as running gears and motors for those who wish to assemble their own vehicles, are promised shortly by the United States Motor Vehicle Co., Townsend Bldg., New York. Mr. C. J. Field, M. E., well known as an engineer in New York, is connected with this company.

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The tremendous demand for the splendid conveyance illustrated above, being as it is a light side bar top carriage, with all the life, character and lightness of such a vehicle, is taxing the company's manufacturing facilities as fast as they can increase them, and to insure prompt delivery in the Spring it advises placing orders early this fall and winter. They can, however, make prompt deliveries at present on this particular style of vehicle in from thirty to forty days.

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#### TRADE NOTES.

The automobile makes business brisk at the works of the Siemens & Halske Electric Co. of America, where the motors are built for the Electric Vehicle Co. Something like two hundred a month are being turned out.

The Autocar Company, of Pittsburg, is the name of the new company that has absorbed the patents and business of the Pittsburg Motor Vehicle Co. The main office and works are at Swissville, Penn.

At a recent meeting of the board of directors of the Electric Vehicle Co., R. McAllister Lloyd was elected president in place of Isaac L. Rice. The executive committee is made up of Isaac L. Rice, John Jacob Astor, George H. Day and Martin Maloney.

Circulars describing an air pump for the inflation of pneumatic tires has been received from the Gleason-Peters Air Pump Co. While the automobile is capable of raising the wind, it is, however, useless without a pump for producing the required density of air in its tires.

A very attractive pamphlet, containing information with reference to the use of flake graphite as a lubricant for cylinders and valves, has recently been issued by the Jos. Dixon Crucible Co., of Jersey City. The matter is well presented and the evidence is conclusive as to the value of flake graphite as a lubricant for heated cylinders and valves. The testimonials of many engineers are given.

Syracuse is about to make a reputation for itself in the automobile line, as it has in the bicycle business. In fact, one of the members of the new firm of Saul & Van Wagoner, is at the head of the large bicycle company in that city. Mr. Saul has been for many years engaged extensively in the carriage manufacturing business. Several years of experimental work has resulted in the two lines of automobiles—gas and electric—now built by this firm.

A large new factory is going up at the works of the Daimler Mfg. Co., Long Island City, which will be used for the manufacture of motors for automobiles. This will be completed and occupied in about ninety days, at which time the new carriage motor will be ready for the market. The marine type of motor, which has received the chief attention of the company, will be built at a factory on the waters' edge, as it will be more convenient for this branch of the business.

An automatic fender for the use of motor carriages and other vehicles has been perfected by Frederick J. Graf, of New York. It is well spoken of, and the fact that it has received an award from the American Institute is sufficient evidence of its practical nature. It can be entirely concealed under the automobile, and is automatically placed in position. The device is covered by patents, and besides the foregoing advantages, it is claimed that it is impossible to inflict injury upon the person it is attempting to rescue.

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